THE EFFECT OF INTERNAL FACTORS WITHIN THE GOVERNMENT ENTITIES ON THE IMPLEMENTATION OF E-GOV PROJECTS BY EXTERNAL IT SERVICE PROVIDERS: AN EMPIRICAL STUDY ON GCC AREA

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ABSTRACT

The building of e-government has become a priority issue as well as a challenge for many local, state, and federal government agencies worldwide. Information and Communication Technology (ICT) is now widely employed to help the governments transformation toward smart governments. Many critical success factors (CSF) are there to determine the chance a transformation project can go-live. It has been noticed that the implementation journey for IT solutions in the public sector has lots of barriers and challenges which lead to low success rate of projects. This study examines the effect of the Ease of Delivery of the implementation journey on the Success of Delivery. The result shows that the Ease of Delivery is positively related to the Success of Delivery. The result of this study has the potential to increase the success rate of IT projects in government sector by shedding the light on the most important factors affecting the delivery journey for e-government projects.

1. INTRODUCTION

Governments deal with complicated processes and changing regulations every day and they want robust and out-of-shelf IT solutions to allow to navigate them with ease. From spurring economic development in the local community to implementing local solutions for many industries regulations, research and insights can often be just the help a government needs to start a meaningful and fruitful analysis and quickly determine the solution that is right for either upcoming or existing regulations.

Studies has shown that only 15% of e-gov projects have been successful in attaining the goals without any major undesirable barriers [1]. The objective of this research is to detect the internal factors within the government entities that affect the progress of e-Government project implementation and ultimately the final delivery.

IT service Providers are being hired by the government entities in order to design and build government solutions and software to improve productivity, efficiency, increase citizen engagement and enable the development of thriving societies. Today, citizens are knowledgeable enough to how e-services should be delivered, and expect a consistently convenient, openly

transparent view into their local government. While government agencies struggle to do more with less, IT service providers are there in the market to fulfil this need.

Custom developed solutions, readily available systems or cloud-based services are the different options the governments have, to help accelerate efficiency, growth, and transparency in communities of all sizes. These different types of solutions enable government agencies to simplify and streamline the complex and dynamic regulatory processes to ensure compliance with new and updated standards, and solve new and evolving regulatory challenges.

Knowing in advance the factors that would cause a failure for an e-government project, could help target and mitigate them in an early stage which will increase the success chances for a project.

This research will try to answer the below question:

Q1: How are internal factors within government entity related to the project delivery journey of citizen-centric IT projects.

The research objective is to:

- Assess how much the Ease of Delivery journey is related to the Success of the project
- Identify human factors affecting the success of the project
- Explore how legal and budgetary factors play a role in the success or failure of an initiative.
- Assess the weight of the resistance to change and business user's readiness for such transformation
- Assess the readiness from IT infrastructure and knowledge perspectives.

The paper is structured into seven sections. In the following section, we do a literature review about e-government. In the third section, we will discuss the research method adopted in this research paper. The fourth section presents the data analysis and results. In section five, we will discuss the results we got from the data analysis. The sixth section will be about limitation and future research topics. In the last section, the conclusions are derived and discussed.

2. LITERATURE REVIEW

2.1. e-Government

Generally, government to e-government transformation has been defined as the application of ICTs to transform the productivity, efficiency, effectiveness, transparency and accountability of informational, and transactional exchanges within government units, between local and federal government, individuals and businesses; and to empower citizens through access and use of public information and public [2]. In other words, the goal of e-government is delivering citizen-centric e-services which ensures transparency and accountability for all parties [3]. The studies in the literature allow us to have the following connotation of e-government services [2].

The e-government means:

- Enhancing government processes by using IT and government process governance (e-administration)
- Offering government services electronically for citizens, businesses, government employees, and other stakeholders (e-government services)

- Developing transparency and democratic decision making, as well as citizen's engagement (e-democracy)
- Enable cooperation, transparency, networking and partnerships between government departments, citizens, and businesses (e-governance).

The complete understanding of e-government requires careful consideration on its different issues and for its successful implementation. e-Government comprises a multidimensional approach embracing the deliberation (from strategic level to the technical level) of distinct aspects (economic, cultural, social, political, and organizational) and the core phases of e-government (from information to personalization level of e-government maturity). Detecting the success factors that are critical for adopting e-government is becoming an important task among other things [2].

Critical Success Factors of e-government IT project initiatives can be categorized under different subjects and covers many areas, such as: Technology, Management, Government Directions and Strategy. Identifying the success factors prior the start of the transformation project is crucial for the delivery on time, within the agreed quality and within the budget for both ESP and the government entity.

We live in the era of Information Technology. These days, the economic development of societies triggered by information and communication technologies (ICTs), is only possible with an effectively operating government, and especially an electronic government (e-government). The success of government to e-government transformation requires the ICT adoption for reengineering government processes and delivering government services electronically to different government stakeholders, i.e. citizens, businesses and government employees. The building of e-government has become a priority issue as well as a challenge for many countries, regions, and cities. [4]

Studies has shown that few e-government projects as been successful without any major obstacles during the lifecycle of the project [1]. It has been always a tough project delivery journey with the government agencies which consumed lots of extra resources from both the government entities and the IT service providers.

2.2. Critical Success Factors

It is a challenge to identify the factors and indicators that determine the success of e-government. Success factors can be defined as the areas and operations which should be focused on the most in order to achieve the most satisfying results of e-government project [5].

This research paper will be on the internal factors within the government entities which affect the implementation progress and delivery of government IT projects. Both the government entities and the ESPs will benefit from this study to position themselves better when implementing e-government.

The reasons behind the success or failure of e-Government projects can be categorized under 2 main categories: First, the study, implementation, and rollout of the project by the government entity, and second, the adoption of these e-services by the citizens or businesses. Each of these two areas has its own factors, variables, and models. Lots of papers in the literature have studied the success factors from all different angles especially form the e-services adoption by citizens. Many other researchers have studied end to end critical success factors for a successful e- Government initiative, yet nothing in the literature has studied specifically the impact of the internal factors within the government entities like readiness, awareness and user acceptance on the implementation journey and the overall project delivery by an external service provider.

This research will try to fill the gap by detecting and studying those internal factors that stand behind the smoothness of the project progress and eventually the success or failure of the project.

The high failure rate of e-Government implementation has been always a valid driver that motivates researchers to explore and continue exploring the factors that impact e-Government implementation success [4]. For this reason, lots of factors has been identified in the literature that cover the topic from different perspectives. It has been noticed in developing countries only 15% of all e-government projects have been successful in attaining their major goals without any major unwanted outcome. 50 % of projects were partially successful and the rest 35% were totally failed [1]. An example of successful e-government project is for Directorate of Pension, Provident Fund and Group Insurance (DPPG) in India where the officials admitted that the automation project has made the work easier and enhanced the performance [6].

On the other hand, PMI has identified that only 60% of projects were completed within the budget and the specified timeframe. For the remaining 40% of the projects which exceeded the defined budget and bypassed the timelines, many companies will face huge complications when dealing with the aftereffects like reputation loss and enabling penalty clauses. [7]

2.3. Government Development Levels

2.3.1. Traditional Government

Traditional Government has limited to no electronic access. It has no unified strategy or operating model. All services are traditionally processed through hard copies and highly depends on government officers to process the citizens and businesses application requests [8]. The processing time of the applications will take from few days to few weeks to be completed.

2.3.2. Electronic Government

e-Government is the first level in depending on Information and Communication Technologies to automate the government processes. Most of government services are provided electronically (e-service) through the government entity website [8]. A huge reduction in processing time, from few weeks to few days, is being noticed at this level. The need of physical presence of the applicant at the government entity is very little.

2.3.3. Mobile Government

m-Government is the next level of government transformation [8] where the e-services are delivered through the mobile devices either through mobile apps or by adopting responsive websites to be able to fully function through the different mobile phones' browsers. More reduction in applications processing time is noticed at this stage.

2.3.4. Smart Government

s-Government is the highest level in smart city or smart government [8]. Artificial Intelligence AI is used to automate the processes which reduces the processing time of different government services from weeks with the traditional government and days with electronic and smart government to few minutes in smart government. Cloud based solutions are mostly used in this level in order to provide high level of availability and scalability. In most cases the applicant does not need at all to present in person at the government entity.

In this research, we refer to electronic, mobile, and smart government as e-government.
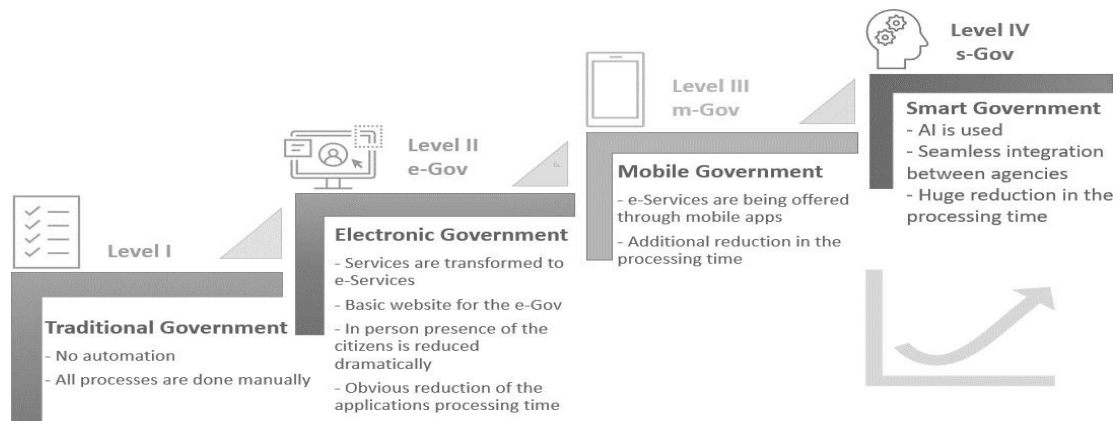

Figure 1. Government Maturity Levels

2.4. Conceptual Research Model

Studies have identified two determinants of government maturity. First, e-Readiness which comprises all factors necessary to start the implementation of e-Gov. Second, e-Government maturity which is the current level of the government maturity in the area of business processes automation. [9]

While macro-economic factors such as level of GDP, Per Capita Income and country ICT infrastructure are important in determining e-government maturity at the country level; this does not necessarily mean that the maturity among different government agencies within the same country is the same. In other words, there are differences in the maturity of e-government among governmental agencies even in those top ranked countries. It has been proven that organizational specific factors play a vital role in assessing the stage of organizational e-government maturity. [9] The lack of governance and processes to facilitate digital access of the citizens has been found affecting the digitalization of smart cities and the factors affecting the digitalization are: buy-in of key stakeholders, governance of sustainability, relation with big data, capturing value, resource optimization, innovation regulations and network of collaboration [10] [11]. Facilitating conditions and environmental matters are crucial for technological aspects in e-government activities. [12]

There is rich empirical work on e-government implementation; yet implementation of e-government projects is challenging. Studies have proved that people related factors, administration of IT and funding play an important role in influencing successful implementation of e-government. [12]. However, it is debated that some governments may have IT staff yet most of their training may not prepare them to program the required online applications. In addition, adequate funds and management are among the relevant factors in determining the success of technological aspects for e-government [12].

A study in Jordan has found that lack of IT infrastructure readiness is the strongest factor to effect on e-government performance negatively and the most important factor to provoke users' dissatisfaction [13]. Another study in UAE has found that internal government efficiency affects smart government effectiveness. The public sector in UAE has seen many efforts to introduce managerial strategies that aim at improving efficiency [14]. In a study in Poland, the government has adopted e-government as one of several reforms undertaken to increase the transparency and efficiency of government units and achieve significant cost reductions derived from the use of

ICTs. The adoption was not straight forward, and it required high attention to technological, organizational, social, economic, and political factors [2]. A study in Russia has found that the quality of e-services delivery was enhanced by applying firm normative and administrative regulations [15]. In a study in Turkey, it was found that the organizational factors have influenced the adoption of e-government [16].

The e-government barriers were defined as characteristics – either real or perceived – of legal, social, technological, or institutional context which work against developing e-government, either: because they impede demand, by acting as a disincentive or obstacle for users to engage with e-government services; or because they impede supply, by acting as a disincentive or obstacle for public sector organizations to provide e-Government services [13].

Upon this literature background, the proposed hypotheses are:
H1: Strategy and governance factors have a positive effect on the success of e-government
H2: IT infrastructure and knowledge factors have a positive effect on the success of e-government
H3: Legal and regulatory factors have a positive effect on the success of e-government
H4: Culture factors have a positive effect on the success of e-government
H5: Financial factors have a positive effect on the success of e-government

Based on the literature review (Figure 2), Strategy and Governance, IT infrastructure, Legal, Cultural, and Financial factors are found affecting the success of the e-government projects.
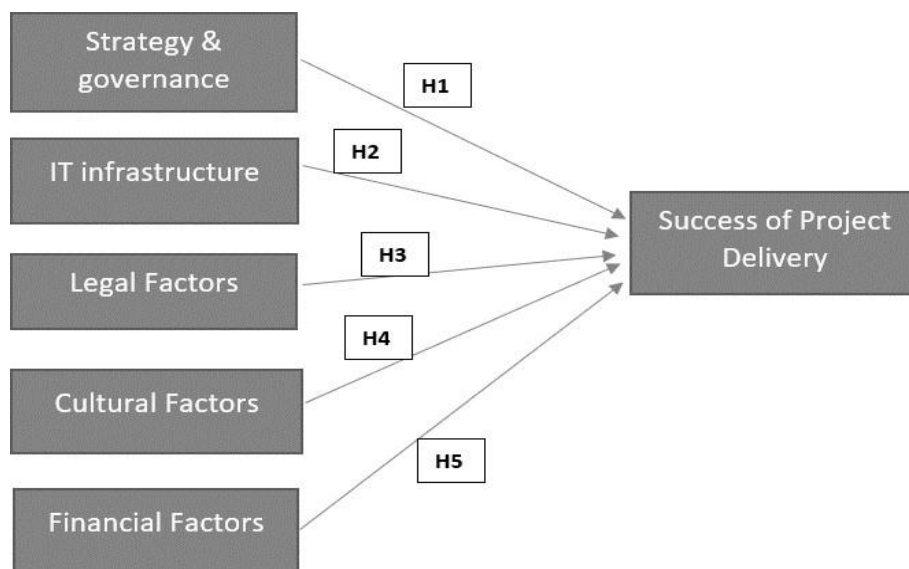

Figure 2. Conceptual research model based on literature review

3. RESEARCH METHODOLOGY

Examining the Critical Success Factors CSFs for e-government is a complex task and it requires research tasks of cognitive, conceptual, and methodological characteristics [17].

Couple of research tools will be adapted: Qualitative interviews with 5 industry experts and qualitative survey through virtual interviews with experts in e-government projects implementation.

The qualitative interviews were conducted to gather knowledge and input from outside the literature on CSFs from few industry experts within their domain of expertise for verifying and developing the model of research. The industry experts belong to 4 different international companies, and they are located in UAE, Oman and KSA with minimum of 15 years of experience in the government IT sector.

During the interviews with the 5 industry experts, 3 questions were asked:

Q1: What are the internal factors within government entities that would affect the journey of e-government projects implemented by external service provider?
Q2: What indicators would designate the complexity or ease of e-government project implementation?
Q3: What key Indicators in an e-Government project indicate that the project is smoothly or hardly flowing?

All answers were within the lines of the literature review. One common item in all answers has been found: The existence of a supportive and decision maker project sponsor from the government entity is crucial for the success of the project. The project sponsor is a person or group of people who have high influence and have high interest in the e-government transformation and can see the benefit of the success of the IT project on the strategic goals of the government entity.

The conceptual model from the literature will be enhanced to cover the area that is under investigation (Figure 3). Another dependent variable (mediator variable at the same time) will be added to the model which will measure the ease of project delivery and how it is affected by the different identified factors and how it affects the final project delivery. For that the below research model will be investigate through an empirical study.
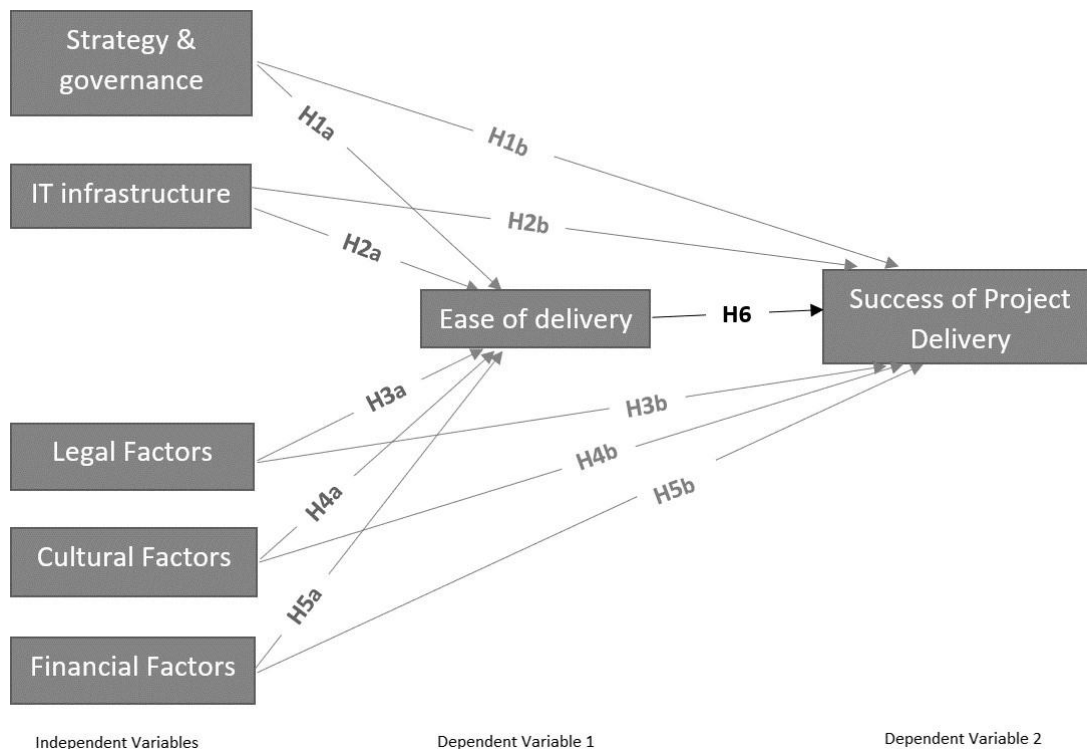

Figure 3. Research Model

Based on the literature review and the interviews, the below table (Table 1) summarizes the different sub-variables, dependent and independent variables which support the above research model.

Table 1. Independent, Dependent and Sub-Variables

Independent variables	Reference
Strategy and Governance	[18]
Over-ambitious e-Gov milestone	[18] [19]
Lack of ownership and governance	[18] [11]
Internal conflicts between departments	[18] [4] [17] [20]
Availability of supportive internal sponsor	[18] [4] [17] [20]
The sponsor is a decision maker within the entity	[18] [21] [4] [20]
IT infrastructure	[21] [13]
Lack of support from the IT department in the gov entity	[4] [14]
Lack of qualification in the IT department	[4] [13] [14] [2]
Out of date infrastructure	[18] [22]
Regulatory items	[21]
Legislations are in place to support the IT project	[4] [20] [13] [22] [23] [10]
Inter-government entities agreements for data sharing	[18]
Bureaucracy in local government	[4] [20] [21]
Cultural and psychological factors	[18] [17] [21]
Officers are lack of IT skills and understanding	[17] [20] [21] [14]
Existence of other systems that will be replaced	[18]
Resistance to change	[4] [17] [21] [14]
Financial factors	[20] [21] [13]
Shortage of financial resources	[4] [17] [20] [13]
Centralization of funding at a higher or other government entity	[4] [17]
Dependent variables	
Ease of Delivery	by the researcher
Escalated items	[24]
Smooth user Acceptance	by the researcher
Infrastructure requirements were ready on-time	by the researcher
Requirement collection was complete and accurate	[19] [23]
Success of the project delivery	[19]
Cost	[24] [23]
time	[24] [23]
User satisfaction	[24]

The controlled quantitative survey research of 7-Likert scale was conducted. 102 responses were collected through virtual interviews with people who are working on multiple e-government

projects in GCC region. The survey (Table 2) collected data from 14 different government entities with an average of 7 respondents per entity.

The survey has considered these points:

- Careful design of questions.
- The questionnaire must be easy to understand and uncomplicated.
- Clarify the purpose of the questionnaire.
- Language and terminology should be familiar for the interviewee.

Table 2. Survey questions

Code	Item
SG1	The entity's expectation from the project was very realistic
SG2	There was clear ownership of the project (by one or more entity departments)
SG3	There were no inter-departments conflicts which negatively affected the progress of the project
SG4	A supportive internal project sponsor was always available when needed
SG5	The internal project sponsor is a decision maker within the entity
ITI1	The level of support from the entity IT department was adequate for the project
ITI2	The entity IT department has the qualifications needed to support the project
ITI3	The IT infrastructure has all what is needed for the project
LI1	Legislations that are prerequisite for the e-services are already in place
LI2	Inter-government entities data sharing (integration) agreements are in place
LI3	The bureaucracy has not affected the speed of decision making of important items
CF1	All business users have the minimum IT skills and understanding
CF2	The existence of legacy system/s did note make it harder to deliver the project
CF3	The resistance to change was in general very minimal
FF1	There were no financial constraints form the entity when it comes to finance new requirements or Change requests during the implementation phase
FF2	Centralization of funding at a higher or other government entity did not delay the receipt of the payments
SPD1	Meeting the deadlines
SPD2	Payments received on time
SPD3	Budget was not exceeded from the company
SPD4	The overall solution met the expectation of the gov entity stakeholders
SPD5	Overall, the project delivery was successful
EPD1	The number of escalated items were relatively low for this project
EPD2	User acceptance session went smoothly with no major remarks
EPD3	There were no delays related to infrastructure
EPD4	The gathered business requirements were complete and clear.
EPD5	Overall, the project delivery journey was relatively easy

4. DATA ANALYSIS AND RESULTS

The structural-equation model SEM will be used to test the model through path analysis. As the model has 2 dependent variables, SEM can not only handle multiple dependent variables at the same time but can also estimate how the ease of project implementation journey and the final project delivery are interconnected and are affected by other independent variables (Factors) and their respective sub variables. Therefore, SEM is appropriate to use in this study to investigate the effect of the ease of project implementation journey on the final project delivery in e- government projects.

The sample size of minimum 102 is acceptable to use SEM [25] and as a rule of thumb, 102 is fine for using SEM [26].

Partial least squares (PLS) using SmartPLS3.3 Software was used to analyse the data. PLS differs from the covariance-based structural equation modelling techniques in that PLS places minimal restrictions on measurement scales, sample size, and residual distributions [27]. PLS analysis is not affected by the data distribution and does not assume true independence of the variables which leads to more reliable results. PLS also handles data structural problems in a robust way, namely, skew distributions and omissions of regressors [27].

A two-phase analytical technique consisting of measurement model analysis (reliability, and validity) and structural model analysis (examining the cause and effect, and variables relationships) was employed after performing the descriptive assessment. While the model of measurement explains the validity of each parameter and factor, the structural model describes the correlation between the parameters in the model through path analysis. Analysing the data through the second-generation multivariate data analysis technique which is SEM-PLS using the most reputable and easy to use software in this area, SMARTPLS, offers a simultaneous analysis which leads to more accurate estimates and easier analysis.

4.1. Reliability and Validity

4.1.1. Descriptive Analysis

Table 3 presents the mean and standard deviation of each variable in the current study calculated using the software JMP Pro 15.1. The respondents were asked to indicate their opinion on the indicators related to the success of e-government projects delivery as well as the ease of delivery throughout the implementation journey based on a 7-likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). 7-likert scale was used to give more sensitivity to the research model because of the sample size restriction.

Regulatory requirements (mean 5.45) and IT infrastructure readiness (mean 5.44) score the highest and Financial restrictions (mean 4.57) scores the lowest.

4.1.2. Model Reliability and Validity

To test the measurement model, we need to examine the convergent validity, discriminant validity, and internal consistency of the constructs. Construct validity and reliability were used to examine the measurement model. The alpha coefficients of Cronbach were tested to determine the reliability of every core parameter in the measurement model. All Cronbach's alphas are greater than the minimum accepted threshold of 0.65 [28]. Moreover, for inspecting construct reliability, all the Composite Reliability (CR) values are greater than 0.7 [29]. Thus, as Table 3 shows,

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construct reliability has been fulfilled as Cronbach's CR and alpha were within the acceptable limits. Convergent validity refers to the extent to which the items under each construct are measuring the same construct. Two methods were applied to assess convergent validity. First, the reliability of the item suggests that the factor loading of each item on its related construct must be higher than 0.7 [30]. As shown in Table 3, 5 items (ITI3, LI1, CF2, EPD3 & SPD2) have loading values below the suggested threshold and they will be deleted from the model. Second, we assessed convergent validity by examining the average variance extracted (AVE) for each construct which reflects the ratio of the construct's variance to the total variances among the items of the construct. All AVEs (Table 3) were above the 0.5 threshold [29].

Table 3. Descriptive statistics, validity, and reliability data

| Factors | Items | Items | | | Factors | | | | |
		Mean	Std Dev	Factor Loading	Mean	Std Dev	Cronbach's alpha	CR	AVE
Strategy and Governance	SG1	5.24	1.33	0.811	5.04	1.452	0.908	0.931	0.731
	SG2	5.14	1.41	0.86					
	SG3	4.88	1.49	0.835					
	SG4	5.13	1.45	0.887					
	SG5	4.82	1.58	0.88					
IT	ITI1	5.09	1.29	0.928	5.11	1.255	0.834	0.921	0.853
	ITI2	5.12	1.22	0.883					
	ITI3	5.44	1.16	0.69 (Deleted)					
Legal and Regulatory	LI1	5.45	1.45	0.47 (Deleted)	4.74	1.535	0.802	0.907	0.83
	LI2	4.77	1.60	0.892					
	LI3	4.70	1.47	0.932					
Culture	CF1	5.01	1.18	0.785	4.86	1.365	0.667	0.857	0.749
	CF2	4.94	1.43	0.449 (Deleted)					
	CF3	4.71	1.55	0.908					
Finance	FF1	4.57	1.48	0.893	4.84	1.425	0.651	0.846	0.734
	FF2	5.11	1.37	0.825					
Ease of Delivery	EPD1	4.75	1.45	0.815	4.7	1.36	0.907	0.935	0.783
	EPD2	4.75	1.29	0.876					
	EPD3	5.26	1.16	0.463 (Deleted)					
	EPD4	4.81	1.26	0.876					
	EPD5	4.48	1.44	0.917					
Success of Delivery	SPD1	4.95	1.52	0.847	4.99	1.542	0.897	0.929	0.765
	SPD2	4.81	1.39	0.658 (Deleted)					
	SPD3	4.86	1.62	0.836					
	SPD4	5.07	1.43	0.848					
	SPD5	5.06	1.59	0.899					

4.2. Structural Model Analysis

The structural model can be tested by computing R², adjusted R² and the corresponding t-values and p-values via bootstrapping procedure. The path coefficients of the proposed model were estimated using PLS (Figure 4).

Table 4 and Figure 4 illustrate the assessment of the structural model, showing the results of the hypothesis tests, with 5 out of the 11 hypotheses are supported. Strategy and Governance, and Finance are found positively related to the Ease of Delivery with R² = 0.62 and the Success of Delivery with R²= 0.73. R² explains the strength of the relationship between the dependent and independent variables. The Ease of Delivery is found positively related to the Success of Delivery. Hence, H1a (path=0.206, t=2.206, p-value = 0.027), H1b (path=0.606, t=6.22, p-value = 0.00), H5a (path=0.181, t=2.295, p-value = 0.022), H5b (path=0.181, t=2.473, p-value = 0.013) and H6 path=0.52, t=5.458, p-value = 0.00) are found supported. IT, Legal and Regulatory, and Culture factors are not found related to the Ease of Delivery and Success of Delivery. Hence, H2a (path= -0.079, t= 1.024, p-value = 0.306), H2b (path= -0.067, t= 0.815, p-value = 0.415), H3a (path= 0.04, t= 0.431, p-value = 0.666), H3b (path= 0.085, t= 0.779, p-value = 0.436), H4a (path= 0.121, t= 1.165, p-value = 0.244) and H4b (path= 0.1, t= 0.83, p-value = 0.406) are found not supported.

Table 4. Hypothesis Analysis

|	Path Coefficients	T Statistics	P Values	Decision
H1a: Strategy and Governance -> Success of Delivery	0.206	2.206	0.027	Supported
H1b: Strategy and Governance -> Ease of Delivery	0.606	6.22	0	Supported
H2a: IT -> Success of Delivery	-0.079	1.024	**0.306**	**Not Supported**
H2b: IT -> Ease of Delivery	-0.067	0.815	**0.415**	**Not Supported**
H3a: Legal -> Success of	0.04	0.431	**0.666**	**Not Supported**
Delivery				
H3b: Legal -> Ease of Delivery	0.085	0.779	**0.436**	**Not Supported**
H4a: Culture -> Success of Delivery	0.121	1.165	**0.244**	**Not Supported**
H4b: Culture -> Ease of Delivery	0.1	0.83	**0.406**	**Not Supported**
H5a: Finance -> Success of Delivery	0.181	2.295	0.022	Supported
H5b: Finance -> Ease of Delivery	0.181	2.473	0.013	Supported
H6: Ease of Delivery -> Success of Delivery	0.52	5.458	0	Supported
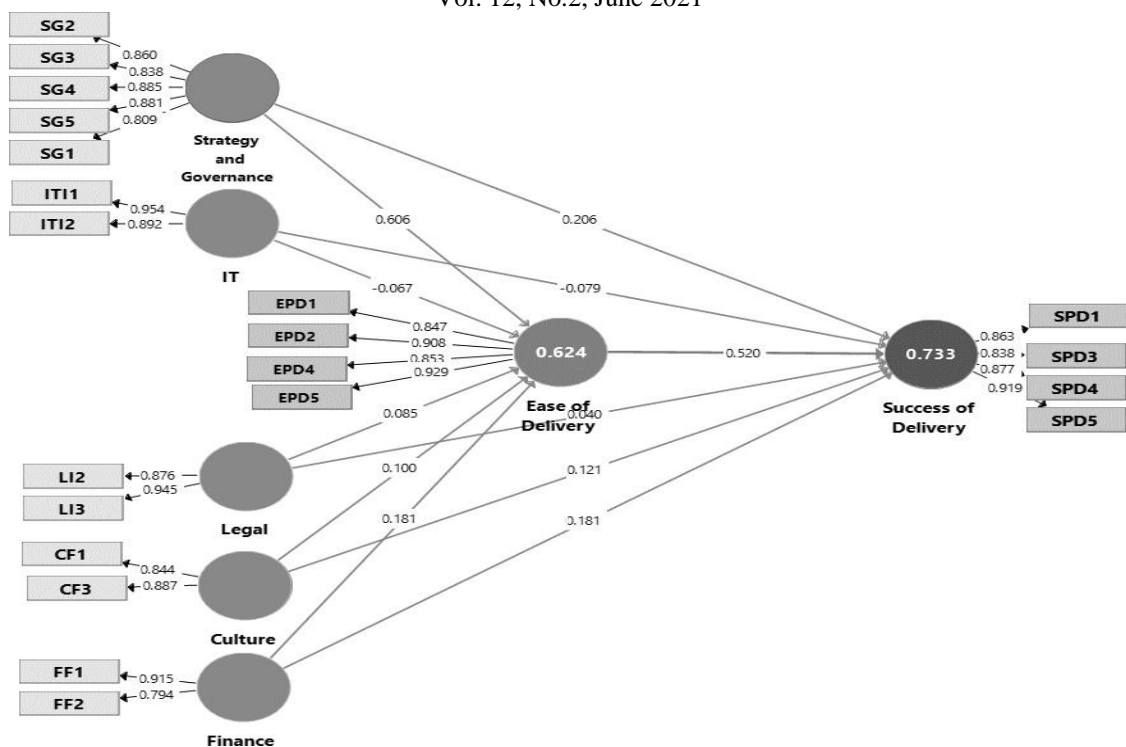
Figure 4: Path Analysis through SEM-PLS

On the advice of a reviewer, we needed to test solely the effect of Ease of Delivery on the Success of Delivery. For that we have updated the model into two different versions to address the same. First, we have kept the Ease of Delivery as a mediator for Success of delivery and removed all connections between independent variables and Success of Delivery. The purpose will be to test the effect of Ease of Delivery on the Success of Delivery without the effect of any other factors on Success of Delivery. The path coefficients of the updated proposed model were estimated using PLS (Figure 5). Compared to the main research model, the Success of Delivery R2 has reduced slightly to 0.672 from 0.73, this means Success of Delivery is highly explained by the Ease of Delivery and other independent variables have lesser impact on explaining the Success of Delivery. The path coefficient became stronger and moved up from 0.502 to 0.820 and t- statistic has better value and moved up from 5.458 to 16.7. This proves that H6 is supported, and the Ease of Delivery is positively related to the Success of Delivery.
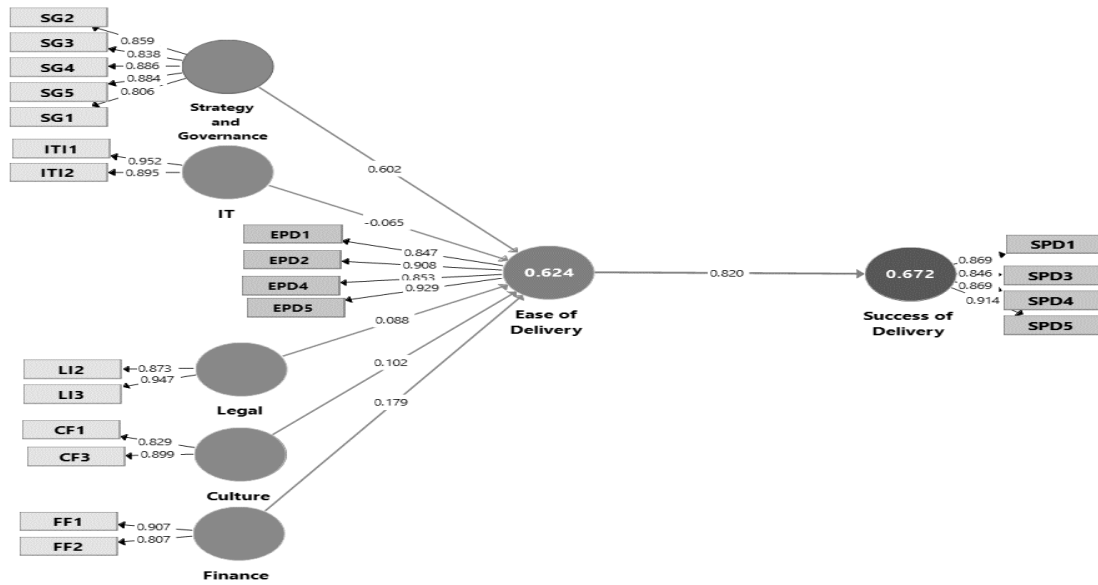
Figure 5. Updated model #1

Second, we considered Ease of Delivery as the only independent variable affecting the Success of Delivery and we removed all other factors from the model (Figure 6). The purpose of this test is to check only the direct effect of Ease of Delivery on the Success of Delivery without any intervention from any other variables. The path coefficient of the updated proposed model is estimated using PLS (Figure 6). Compared to the main research model, the Success of Delivery R² has reduced slightly to 0.671 from 0.73, this means Success of Delivery is highly explained by the Ease of Delivery. The path coefficient becomes stronger and move up from 0.502 to 0.819 and t-statistic has a better value and moved up from 5.458 to 16.444. This proves that H6 is supported, and the Ease of Delivery is positively related to the Success of Delivery.
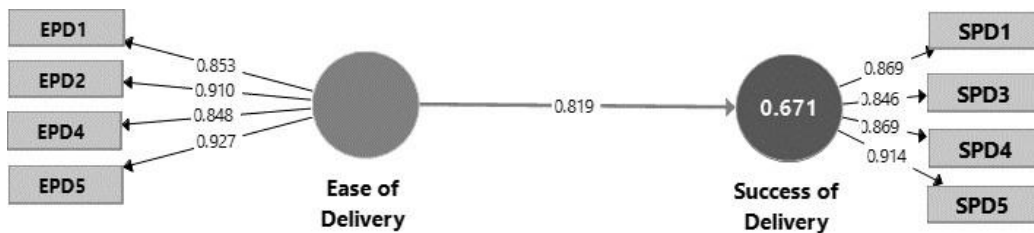

Figure 6. Updated model #2

5. DISCUSSION

The success of e-government project delivery is crucial for the government entity as well as the external IT service provider. The government entity is required to provide the citizens with e-services that are easy to use, and which reduce the applications processing time as well as going with the trend and becoming a smart government which will eventually boost the economy.

Any e-government initiative will require huge efforts and big amount of money from the government entity as well as the service provider. Making sure that all these resources will not be wasted and making sure the e-government project will be completed and go live is of high interest for both the government entity and the service provider. A successful project will provide monetary

and reputation benefits for the IT service provider as well. The first step to make sure an e-government project is delivered successfully, is to clearly define the problems and factors affecting the delivery journey in order to provide appropriate solutions and being proactive by having ready mitigation plans for the identified problems as this study wishes to do.

The measurement of Ease of Delivery and its relation to the overall Success of Delivery of e-government projects were verified and checked with different versions of the suggested research model in order to cover all scenarios. The relation of Strategy and Governance, Finance, Culture, IT, and Regulatory and Legal Factors were studied to detect the implication on Ease of Delivery and Success of Delivery.

The studied research model with all its different versions can be used to identify and measure the key factors affecting Ease of Delivery and Success of Delivery in order to give reference for different stakeholders to address and mitigate those factors or problems. The study investigated the relationship between the Ease of Delivery and the Success of Delivery for e-government projects. Many stakeholders will benefit from such model, namely, implementation team and sales team from the service provider side and the different departments from government entity side.

The 3 different versions of the model analysed through SEM showed that the Ease of Delivery is highly related to the Success of Delivery (represented by H6). When the implementation of e-gov project is going smoothly the chance of the overall project success is higher.

The relationship of Strategy and Governance factors was found significant with both Ease of Delivery and Success of Delivery (represented by H1a and H1b). The same was found in a study in Poland [2] where the organizational factors were found the most important factors for e-government adoption. Another study proved that the internal government efficiency is a key success factor for smart government [14]. This finding indicates that government entities now give high attention to the project governance. This assumption supports what was noted in the interviews with the 5 industry experts where they all mentioned that the availability of a supportive and decision maker project sponsor from the government entity side is a key success factor for the project.

Legal and Regulatory factors were found insignificant in affecting neither Ease of Delivery nor Success of Delivery (represented by H2a and H2b). This finding is indirectly supported by a study in Bangladesh where the researcher argued that for non-developed countries only Legal and Regulatory factors are affecting the e-government [12]. This would indicate that the legislations are not strongly affecting the implementation of e-gov projects. This is because the government entity itself, in most cases, sets and makes sure all required regulations and legislations are already in place to facilitate the implementation of such initiatives beforehand.

The relationship of IT knowledge and infrastructure with both Ease of Delivery and Success of Delivery was found insignificant (represented by H3a and H3b). This result contradicts with what was found in a study in Jordan [13] where the IT infrastructure was the main reason affecting the e-gov. This finding indicates that the IT readiness which used to be a barrier in previous years for the e-government implementations is not anymore significant. This comes back to the change in the way e-services are offered and infrastructure is set up. Governments are now moving to cloud hosting platforms [31] which relief the entities from the huge IT infrastructure support and knowledge requirements. In addition, SaaS (Solution as a Service) is now more acceptable in the public sector which does not need any infrastructure intervention from the government entity.

The Culture Factor was found insignificant to both Ease of Delivery and Success of Delivery (represented by H4a and H4b). This result contradicts with what was found in a study in Kuwait where the Culture factors were found affecting the e-government adoption [20]. This finding indicates that public employees are becoming less reluctant to change and ready to explore the next level of technology. On the other hand, we can say that the culture factors have now less impact because of the high governance and the availability of decision maker sponsor for the e-government projects as proven in H1a and H1b.

The relationship of Financial Factors with both Ease of Delivery and Success of Delivery was found significant (represented by H5a and H5b). Same result was found in a study in Jordan [13]. This finding indicates that the availability of enough funds with the willingness to spend money on extra scope and change requests help having smoother implementation journey and successful delivery.

6. LIMITATIONS AND FUTURE RESEARCH

The Ease of Delivery was found in this study to positively predict the Success of Project. What this means for IT service providers and Government entities is to always pay attention to the factors and indicators for the Ease of Delivery in order to improve the chance an e-government project go-live. Moreover, it is noteworthy that the impact of Governance and Financial factors on both Ease of Delivery and Success of Delivery were significantly high. Regardless, Ease of Delivery alone was found key in successful implementation of e-government initiatives.

On the other hand, this study has its own limitations. One of the limitations of the study was in the sample size. The study has covered 14 different government entities in GCC, yet we can argue that the sample size of 102 respondents might be considered small with respect to 14 different e-government projects.

Moreover, concerning the methodology of the study, this research used mainly a quantitative approach in a survey research conducted with domain experts from the side of external IT service providers. It is advised that future researchers consider increasing the scope of the survey to cover government employees and citizens.

In addition to that, it is recommended that future researchers consider other aspects when studying the ease of Delivery and its impact. First, Future researchers should check if the type of e-government project i.e. citizen centric or internal IT project, impacts the relationship between Ease of Delivery and Success of Delivery. Second, the size of the project from scope and budget perspectives, can be studied to check if it proves or contradicts with the result of this study. Third, the contract type between the government entity from one side and the IT service provider from the other side i.e. direct contract, sub-contract, or consortium, can affect the Ease or/and the Success of delivery of e-government projects.

This study was done in collaboration with an international IT services provider in order to have better visibility on the current critical success factors of e-government projects in the GCC. Hence, some information is considered classified, and the author cannot reveal the names of the government entities and the industry experts who were part of this study.

7. CONCLUSION

In general terms, the building of e-government has become a priority issue as well as a challenge, and thus is an interesting subject of research. This research puts an effort to make some contribution

to the development of studies on e-government, especially on factors affecting the ease of e-government project delivery journey and its relationship with the project success.

This research attempted to explore the factors within the government entities affecting the implementation journey of e-government projects delivered by external IT service provider by identifying the factors affecting the ease of delivery as well as the final delivery, and how much the ease of delivery affects the overall project delivery. This study filled a gap in the literature by adding valuable knowledge about the effect of the Ease of Delivery on the success of e- government initiatives. We received 102 responses through virtual interviews about 14 different e-government projects in GCC. The data analysis through SEM concluded that the Ease of Delivery is a positive predictor of a successful project delivery. Strategy and governance, and financial factors are found positively related to the ease of delivery and the final delivery. The study has found contradicting results with other research where it was found that IT, Culture and

Regulatory factors do not have a strong relationship with the ease of delivery and success of e-government projects.

The explanation of dependent variables by the independent variables was 62% for Ease of Delivery and 73% for Success of Delivery which is considered high comparing to most studies in the literature.

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